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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,776	07/19/2005	Jacques Bellalou	263894US2PCT	1227
22850	7590	11/30/2009		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER HOBBS, MICHAEL L	
			ART UNIT	PAPER NUMBER
			1797	
			NOTIFICATION DATE	DELIVERY MODE
			11/30/2009	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/517,776	<b>Applicant(s)</b> BELLALOU ET AL.	
	<b>Examiner</b> MICHAEL HOBBS	<b>Art Unit</b> 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 9-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 1 is/are allowed.
- 6) ☒ Claim(s) 1-6 and 9-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08/31/2009 has been entered.

### **Preliminary Remarks**

2. Applicant's arguments regarding the 35 USC 103(a) rejection of claims 9 and 10 are persuasive, see page 10, and the rejections of the claims have been withdrawn.
3. Claims 1-6 and 9-15 are pending further examination upon the merits.

### ***Specification***

4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The

Art Unit: 1797

disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

5. The abstract of the disclosure is objected to because of the inclusion of legal phraseology such as "means" on lines 5 and 8 of the Abstract. Correction is required. See MPEP § 608.01(b).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

Art Unit: 1797

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1, 4-5 and 9-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Arnowitz et al. (US 2004/0033166 A1) in view of Gaillon et al (WO 99/27349) ( with US 6,723,554 B1 being the closest English language translation) (previously cited).

10. Arnowitz discloses a automated robotic device for dynamically controlled crystallization of proteins that includes for claim 1 a chassis (chassis 300) or platform with multiple sample chambers (chambers 314) for containing proteins ([0122]). The chambers are monitored by camera (camera 310) which is an "optical system" and is fully capable of monitoring an "optical property" of each chamber ([0122]). This camera is connected to a guide rail and drive assembly (assembly 312; [0122]) that moves the camera from one sample chamber and the next and is fully capable of allowing "real time measurement" of the sample.

11. With regards to the monitoring and processing means for receiving real time measurements, it is assumed that applicant is invoking 112 sixth paragraph with regards to this limitation. The structure disclosed by the applicant is a computer program used to monitor and process the information from the sensors. Arnowitz discloses a analysis system (system 54) that includes a computer program that receives signals from the sensors and sends signals to the control system (system 58) in order to

Art Unit: 1797

adjust the amount of reactant sent to the sample chamber ([0107]). Therefore, the program of Arnowitz is the art equivalent structure of the program disclosed by the instant application.

12. With regards to the Peltier effect heating system, Arnowitz discloses one or more Peltier devices for heating the fluid within the chambers that is pumped from the reagent reservoir ([0100]). The temperature is adjusted based on signals sent from the analysis system (system 54) that are supplied to the pumps and temperature controllers of the experimental apparatus ([0105]). This is being interpreted as the heating elements being independent and programmable for each sample chamber.

13. However, Arnowitz differs from claim 1 in that the reaction vessel has a volume ranging from 2 mL to 500 mL where Arnowitz discloses a reaction vessel having a volume of 1 mL.

14. Gaillon discloses a method for measuring the optical properties of a sample by feedback control. For claim 1, Gaillon discloses a container that has a useful volume between 10 ml and 60 ml which is used as a fermentor (col. 13 lines 2-4; col. 18 lines 16-19). By increasing the size of the vessel, this provides the advantage of increasing the amount of material that can be cultured by the device using the conventional fermentor of Gaillon. Therefore, it would have been obvious to one of ordinary skill in the art to employ the fermentor with the volume suggested by Gaillon within the device of Kurihara in order to obtain the predictable result of fermenting and testing a sample. Finally, the exact size of the fermentor is a change in shape that does not patentable distinguish the claimed invention over the prior art since a device with the claimed

Art Unit: 1797

dimensions would not perform differently from the prior art device. See also MPEP 2144.04 IV (A).

15. With regards to claim 3, Arnowitz does not disclose a second sensor, however, the use of a second sensor would allow measurements to be taken from more than one region of the sample container and would allow the sensor to account for the dispersion/settling of the sample. Therefore, it would be obvious to one of ordinary skill in the art to employ a second sensor within Arnowitz in order to obtain more readings from the sample container. See MPEP 2144.04 VI (B).

16. With regards to claim 4, the camera of Arnowitz measures or receives light (an electromagnetic radiation) as discussed above. For claim 5, Arnowitz discloses using a stepper motor ([0135]) to move the camera.

17. Regarding claim 9, Arnowitz discloses the steps of optically measuring a cell culture where the temperature control is operated one or more Peltier devices for heating the fluid within the chambers that is pumped from the reagent reservoir ([0100]). The temperature is adjusted based on signals sent from the analysis system (system 54) that are supplied to the pumps and temperature controllers of the experimental apparatus ([0105]). This is being interpreted as the heating elements being independent and programmable for each sample chamber. Arnowitz further discloses automatically controlling the process ([0147]) based on signals from an optical digital microscope ([0147]) based on signals within each sample chamber. The optical sensor is moved from chamber to chamber ([0125]) measuring each chamber.

Art Unit: 1797

18. Arnowitz differs from claim 9 in that the size of the sample chamber is not between 2 mL and 500 mL.

19. . For claim 9, Gaillon discloses using a container that has a useful volume between 10 ml and 60 ml which is used as a fermentor (col. 13 lines 2-4; col. 18 lines 16-19). Furthermore, adjusting the volume of the base device of Arnowitz with the volume of Gaillon would be within the skills of one of ordinary skill in the art based on throughput requirements for testing or the amount of sample to be fermented.

Therefore, it would have been obvious to one of ordinary skill in the art to employ the method of using a fermentor with the volume suggested by Gaillon within the device of Arnowitz in order to obtain the predictable result of fermenting and testing a sample.

20. With regards to claim 10, Arnowitz discloses injecting a fluid into the sample chamber based on the signal sent from the optical system ([0105]; [0107]).

21. Regarding claims 11-15, the limitations of these claims do not provide any structural limitations that distinguishes the claimed invention over the prior art and therefore, Arnowitz is fully capable of being able to "optimize cell culture methods", "make the analysis of gene expression mechanisms" where "the genes are involved in cell adherence mechanisms" and the device is fully capable of being able to study physical and physiochemical mechanisms".

22. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arnowitz et al. (US 2004/0033166 A1) in view of Gaillon et al (WO 99/27349) ( with US 6,723,554



Art Unit: 1797

B1 being the closest English language translation) (previously cited) as applied above and in further view of Bannerjee (US 6,307,630 B1) (previously cited).

23. Arnowitz is silent regarding a emitting or receiving diode. Gaillon discloses that the emitted light is received by a photo-darlington type photo-detector (col. 11 lines 49-50), but does not mention a receiving diode.

24. Bannerjee discloses a turbidimeter array system that uses a common light source and detector to obtain optical data from a plurality of test samples. For claim 2, Bannerjee discloses that the turbidity sensor includes a light source which is a light emitting diode and a detector which is a photodiode (col. 3 lines 58-64). Other solutions to receiving light from the sample also include a photomultiplier tube, an avalanche photodiode, a CCD, a mirror or optical fiber. Furthermore, Bannerjee demonstrates that a receiving diode was a known element at the time of the instant application. Therefore, it would have been obvious to one of ordinary skill in the art to employ the photodiode as suggested by Bannerjee within the optical unit of Arnowitz and Gaillon in order to obtain the predictable result of sending the light from the sample container to a sensor.

25. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arnowitz et al. (US 2004/0033166 A1) in view of Gaillon et al (WO 99/27349) ( with US 6,723,554 B1 being the closest English language translation) (previously cited) as applied above and in further view of Bell et al. (US 5,814,277) .

26. Arnowitz and Gaillon are silent regarding a mobile sample injector.

Art Unit: 1797

27. Bell discloses an automatic multiple-sample, multiple-reagent chemical analyzer that includes a rotary plate that includes a reagent container, a sample container and a test cell where the temperatures of the containers are controlled by a heater and a Peltier cooler. For claim 6, Bell uses an arm with a probe attached to the end of the arm to remove a specific amount of reagent and sample from each container and injects the reagent and sample into a test cell (col. 3 lines 53-65; col. 4 lines 9-11 & 21-23). The arm is being interpreted as being independent of the sensor based on Figure 2a. Therefore, it would have been obvious to one of ordinary skill in the art to employ the arm of Bell in order to load samples into the containers of Arnowitz and Gaillon. The suggestion for doing so at the time would have been in order to provide sufficient mixing of the samples within the test cell (col. 4 lines 27-28).

### ***Response to Arguments***

28. Applicant's arguments with respect to claims 1-6 and 9-15 have been considered but are moot in view of the new ground(s) of rejection.

29. The new grounds of rejection are in view of newly applied reference Arnowitz which discloses a system for observing cell cultures by using an optical system. Also, the Arnowitz discloses using Peltier devices to heat the contents of the chambers where each heating device is connected to a controller that adjusts the temperature based on readings from the optical sensors.

Art Unit: 1797

30. Regarding Applicant's arguments regarding the previously applied reference of Gallion, the examiner respectfully disagrees since the applied reference corrected the deficiency within the previously applied reference regarding the size of the reaction vessels. Further, Gallion demonstrates that the specific size of the reaction vessel is a mere scaling up of a prior art process that would not establish patentability over the prior art process that is capable of being scaled up. See also MPEP 2144.04 IV (A).

31. With regards to Applicant's argument on page 9 that Bannerjee does not provide any useful teaching and that the reference does not provide for heating. The turbidity system of Bannerjee is fully capable of performing turbidity measurements on cells. Also, the type of material tested by the apparatus is material worked upon by an apparatus which does not provide a structural limitation over the prior art (see also MPEP 2115).

32. With regards to Applicant's argument on the bottom of page 9 that the applied reference of Bell is a chemical analyzer and not for cell culture, it is noted that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

### ***Conclusion***

33. Claims 1-6 and 9-15 are rejected.

Art Unit: 1797

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL HOBBS whose telephone number is (571)270-3724. The examiner can normally be reached on Monday-Thursday 7:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Marcheschi can be reached on (571) 272-1374. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William H. Beisner/  
Primary Examiner, Art Unit 1797

/M. H./  
Examiner, Art Unit 1797